valve, reducers and closures that are necessary for the attachment of unloading fixtures. The permanent attachment of supplementary exterior fittings must be approved by the AAR Committee on Tank Cars.

(2) To provide for the attachment of unloading connections, the discharge end of the bottom outlet nozzle or reducer, the valve body of the exterior valve, or some fixed attachment thereto, shall be provided with one of the following arrangements or an approved modification thereof. (See appendix E. Fig. E17 of the AAR Specifications for Tank Cars for illustrations of some of the possible arrangements.)

(i) A bolted flange closure arrangement including a minimum 1-inch NPT pipe plug (see Fig. E17.1) or including an auxiliary valve with a threaded closure.

(ii) A threaded cap closure arrangement including a minimum 1-inch NPT pipe plug (see Fig. E17.2) or including an auxiliary valve with a threaded closure.

(iii) A quick-coupling device using a threaded plug closure of at least 1-inch NPT or having a threaded cap closure with a minimum 1-inch NPT pipe plug (see Fig. E17.3 through E17.5). A minimum 1-inch auxiliary test valve with a threaded closure may be substituted for the 1-inch pipe plug (see Fig E17.6). If the threaded cap closure does not have a pipe plug or integral auxiliary test valve, a minimum 1-inch NPT pipe plug shall be installed in the outlet nozzle above the closure (see Fig. E17.7).

(iv) A two-piece quick-coupling device using a clamped dust cap must include an in-line auxiliary valve, either integral with the quick-coupling device or located between the primary bottom outlet valve and the quick-coupling device. The quick-coupling device closure dust cap or outlet nozzle shall be fitted with a minimum 1-inch NPT closure (see Fig. E17.8 and E17.9).

(3) The valve operating mechanism must be provided with a suitable locking arrangement to insure positive closure during transit.

(4) If the outlet nozzle extends 6 inches or more from shell of tank, a V-shaped breakage groove shall be cut (not cast) in the upper part to the outlet nozzle at a point immediately below the lowest part of value closest to the tank. In no case may the nozzle wall thickness at the roof of the ''V'' be more than ¼-inch. On cars without continuous center sills, the breakage groove or its equivalent may not be more than 15 inches below the tank shell. On cars with continuous center sills, the breakage groove or its equivalent must be above the bottom of the center sill construction.

(5) The valve body must be of a thickness which will insure that accidental breakage of the outlet nozzle will occur at or below the ''V'' groove, or its equivalent, and will not cause distortion of the valve seat or valve.

[Amdt. 179–10, 36 FR 21348, Nov. 6, 1971, as amended by Amdt. 179–40, 52 FR 13046, Apr. 20, 1987; Amdt. 179–41, 52 FR 36672, Sept. 30, 1987; Amdt. 179–50, 60 FR 49077, Sept. 21, 1995; Amdt. 179–52, 61 FR 28680, June 5, 1996; Amdt. 179–53, 61 FR 51342, Oct. 1, 1996; 66 FR 45186, Aug. 28, 2001; 68 FR 75761, Dec. 31, 2003]

Subpart D—Specifications for Non-Pressure Tank Car Tanks (Classes DOT-111AW and 115AW)

§ 179.200 General specifications applicable to non-pressure tank car tanks (Class DOT-111).

§ 179.200–1 Tank built under these specifications must meet the requirements of §§ 179.200, and 179.201.

§ 179.200–3 Type.

Tank built under these specifications must be circular in cross section, with formed heads designed convex outward. When specified in § 179.201–1, the tank must have at least one manway or one expansion dome with manway, and such other external projections as are prescribed herein. When the tank is divided into compartments, each compartment must be treated as a separate tank.

[Amdt. 179–10, 36 FR 21348, Nov. 6, 1971]

§ 179.200–4 Insulation.

(a) If insulation is applied, the tank shell and expansion dome when used must be insulated with an approved material. The entire insulation must